

ATOMIC ENERGY *newsletter*®

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
ROBERT M. SHERMAN, EDITOR. PUBLISHED BI-WEEKLY BY ATOMIC ENERGY NEWS CO., 1000 SIXTH AVENUE, NEW YORK 18, N. Y.

Dear Sir:

November 30th, 1954
Vol. 12... No. 8

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Further tests of nuclear explosive devices by Britain are now to be held in Australia. An official delegation has already been sent from Britain (headed by J.M. Wilson, Under Secretary of the Ministry of Supply) to confer with Australian authorities. (Britain exploded its first nuclear devices in the Monte Bello Islands, off Australia's west coast, in October, 1952.)

Standard Oil Development Co., (research affiliate of Standard Oil Co. of N.J.) now plans to build a new \$250,000 radiation laboratory at its research center in Linden, N. J. Radiation will be used as a source of energy for inducing chemical reactions of basic interest in the petroleum field. To supply the radiation, the Development Co. will obtain from Brookhaven National Laboratory (Upton, L.I.) radioactive cobalt produced in the nuclear reactor there. At the time of delivery, this will comprise some 3,500 to 4,000 curies. According to Eger V. Murphree, president of the Development Co., the facility will be the first privately financed radiation laboratory of its size in the petroleum industry.

Fellowships in radiological physics and industrial hygiene are again being offered by the USAEC; applications for these fellowships, for the 1955-56 school year, are to be made to the Oak Ridge Institute of Nuclear Studies, Oak Ridge, Tenn.

The first special award by the USAEC, under the provisions of the Atomic Energy Act of 1954, has now been made to the late Enrico Fermi. The award to Dr. Fermi, which is for \$25,000, noted his contributions to basic neutron physics and the achievement of the controlled nuclear chain reaction. Among his other honors, Dr. Fermi had received the Nobel Prize, and had been president of the American Physical Society. The untimely death of Dr. Fermi last Sunday is mourned by the entire scientific community of which he was such a vital part.

A new post, that of atomic energy consultant, has now been created by the Chase National Bank (New York). Lawrence R. Hafstad, physicist, and director of the reactor development division of the USAEC, will fill this position January 1st, 1955, when he resigns his USAEC commitment. John J. McCloy, chairman of Chase, said that Dr. Hafstad would represent the bank in conferring with various groups that plan private development of atomic energy.

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BUSINESS NEWS...in the nuclear energy field...

FIRM TO STUDY NUCLEAR ENERGY FOR POWER GENERATION:- The engineering and economic aspects of nuclear reactors for the generation of industrial power will now be evaluated by Kaiser Engineers Div. (of Henry J. Kaiser Co., Oakland, Calif.), under a study agreement now entered into by Kaiser and the USAEC. This is the 18th such study being made (or already made) under the USAEC's industrial participation program. In this study, Kaiser will survey progress in the nuclear field to date; determine the feasibility of an industrial power reactor which might be built in the next few years; pinpoint the remaining research and development needed prior to construction of such a reactor; and make recommendations on the over-all development and power applications of this reactor. Kaiser has budgeted \$100,000 for the study, and will assign a team of specialists from its atomic energy division to the project. (Kaiser Engineers is currently engaged on the \$110 million expansion program at the Hanford plutonium works. Other engineering or construction projects it has completed for the USAEC include facilities at Idaho Falls, Idaho; Inyokern, Calif.; Lockland, Ohio; and architect-engineer services for the University of Calif. radiation laboratory.)

AVAILABILITY OF INSURANCE CITED AS ATOMIC POWER NEED:- The availability of adequate insurance is an important key to progress in private atomic power development, Stuart MacMackin, counsel for General Electric Co.'s atomic products division, recently told the Fall insurance conference of the American Management Association in Chicago. He warned industry representatives that to permit the atomic industry to start down the road of relative freedom uninsured is neither economically sound nor morally proper, and is just as wrong as permitting automobiles to be operated without insurance. Mr. MacMackin stated his belief that once the insurance industry understands the nature of atomic risks, it will offer far more coverage than it presently thinks possible. He noted that the insurance companies had similar worries with the advent of the automobile and solved them completely.

FINANCIAL NOTES...on firms in the nuclear field...

MUTUAL FUND SALES SET RECORD:- Sales of shares in the Atomic Development Mutual Fund (Washington, D.C.) have now gone over the \$10 million mark, according to N. I. Steers, Jr., president of the Fund. Mr. Steers said that the Fund now holds shares in more than 85 different companies ranging from uranium mining to engineering and development of nuclear power reactors. Net assets per share were \$15.35 on November 19. (Financial analysts have recently pointed out that the Fund, which began operations December 14, 1953, has been "riding the crest" of the bull market which began in September of that year. Many of the Fund's holdings are non-dividend payers, being purchased for capital appreciation, and are of a highly volatile nature.)

ATOMIC ENERGY FIRM ELECTS NEW DIRECTOR:- Vitro Corporation of America, only completely integrated atomic energy firm in the U.S., has now elected as a director Morris W. Townsend, financial executive and adviser of long experience. Mr. Townsend is executive vice-president of Axe Securities Corp., and the Axe-Houghton Mutual Investment Funds, of New York.

FINANCIAL ANALYSES AVAILABLE:- Troster, Singer & Co. (74 Trinity Pl., NYC) discuss selected companies which, in their opinion, have a "foothold in the field of atomics"..... C.E. Unterberg, Towbin Co. (61 B'way., NYC) has prepared an analysis of High Voltage Engineering Corp. Penington, Colket & Co. (70 Pine St., NYC) has an analysis of Atlas Corp.

IMPROVED EARNINGS SHOWN BY FIRM ACTIVE IN URANIUM MILLING:- Vanadium Corp. of America has now declared a dividend of 35¢ payable in February, and a year-end extra of 10¢ payable in December. Making a contribution to the company's satisfactory earnings are its milling of vanadium-uranium ore on the Colorado Plateau, where it does work as a prime contractor for the USAEC. The company's returns from such operations, according to Wm. C. Keeley, president, are benefiting from the expansion on the Plateau during the past year of uranium mining.

NEW PRODUCTS, PROCESSES, & INSTRUMENTS...for nuclear work...

FROM THE MANUFACTURERS:- New scaler, Model 200, has a direct coupled non-overload linear amplifier followed by a discriminator that drives the decimal or binary scaling stages. The output of the decimal or binary counting units drives a register driver circuit which in turn operates a mechanical register. A mercury pulse generator is incorporated to furnish an accurate check of the calibration and operation of these sections of the scaler. The decimal and binary units of the Model 200 are directly interchangeable; this permits the scaler to be changed quickly from a decimal scaler to a binary scaler, or vice versa. --Radiation Instrument Development Laboratory, Chicago 36, Ill.

New alpha beta gamma survey meter, Model SU-14, is a lightweight, portable, and waterproof instrument, which may be used as a radiation dosage rate meter and as a monitoring instrument. A carrying strap is provided for its use in the field. The instrument is available with a choice of two Geiger tube probes. The side window probe has a sliding shield for the selective monitoring of medium energy beta particles or gamma rays. A thin end-window probe allows the monitoring of low energy beta emitters such as carbon-14 and sulfur-35, as well as alpha particles. A meter with two sets of scale ranges permits readings to be made in both mr/hr and CPM. Scale ranges of 0.25; 2.5; and 25 mr/hr and 500; 5000; and 50,000 CPM are provided. The time constant is automatically changed when the scale range is selected. Sensitivity drift is limited to 0.05% per hour.... Four new carbohydrates, tagged with carbon-14, are now available from this processor's stock: glucose-C-14; fructose-C-14; sucrose-C-14; and starch-C-14. The purity of these compounds is said to be at least 99.5%, with the specific activity 0.5 to 1.0 microcurie per milligram. These tagged isotopes, which are supplied in crystalline powder form, find uses in biological research in the field of carbohydrate metabolism.--Tracerlab, Inc., Boston 10, Mass.

NOTES:- For taking gamma ray logs of deep drill holes, Minerals Engineering Co. (Grand Junction, Colo.) has now made available a reel unit built on a steel frame, which may be carried in a car. The unit has a large reel, with a capacity of 2,000-ft. of electrical conductor cable, and an adjustable hand crank. The transfer pulley, which centers the probe over the hole, operates an automatic depth recorder. A pick-up unit built into the hub of the reel permits continuous impulses to be transferred to the Geiger counter.

A new atomic battery which makes use of a thermopile to convert heat from radioactivity into electrical energy, has been developed at Mound Laboratory (operated for the USAEC by Monsanto Chemical Co.). In the battery, 150 curies of polonium are sealed into a small capsule, the surface of which is in contact with the hot junctions of 40 thermocouples. Cold thermocouple junctions are located on the surface of the container housing the capsule. A temperature differential of about 450-deg. F. is obtained. The unit delivers 9.4-milliwatts, showing an efficiency of 0.2%. It has an internal resistance of 15-ohms, a no-load voltage of 0.75-volts, and a current power of 25-milliamperes. (This battery compares with the Ohmart unit which, however, converts atomic energy directly to electrical energy. and uses strontium-90 as its radioactive source. Another direct converter of atomic energy directly to electrical energy is the Tracerlab battery which uses tritium. RCA also developed, and widely publicized, a battery similar to the Ohmart unit, claiming a "first" in that field. Ohmart, however, had been making and selling commercial versions of its unit even prior to the RCA announcement.)

A simple inexpensive device, now available from Tracerlab, Inc. (Boston 10, Mass.) enables hospitals, water companies, municipalities, civil defense units, etc., to determine in seconds if their food and water supplies are contaminated following an atomic explosion. This is a uranium-mixture comparison standard emitting a known quantity of beta-gamma radiation. Food or water containing this amount of radioactivity can be safely consumed for 10 days under emergency conditions, according to Federal Civil Defense Agency standards, and if the activity is one-third or less, the food or water can be used for 50 days.

LECTURES & PAPERS ON NUCLEAR SUBJECTS...

American Society of Mechanical Engineers. At the annual meeting of the ASME (Nov. 28-Dec. 3, NYC), papers to be presented on nuclear energy subjects include: General Criteria for Safe Reactor Design and Operation, by C.R. McCullough, Monsanto Chemical Co.; Basic Safety Procedures in Reactor Operation, by R.L. Doan, Phillips Petroleum Co.; A Reactor Emergency with Improvements Adopted as a Result, by G.W. Hatfield, Atomic Energy of Canada, Ltd.; and Disposal of Radioactive Wastes, by Abel Wolman, Johns Hopkins Univ., and A.E. Gorman, USAEC. (Preprints of these papers, except for the McCullough paper, are available from the ASME, 29 W. 39th St., NYC.) (A nuclear engineering committee of the ASME, chaired by A.C. Pasini, Detroit Edison Co., was recently established to co-ordinate the Society's activities in such areas of mechanical engineering as reactor core design, shielding, waste handling, fuels and fuel fabrication, and operation of nuclear power plants.)

American Institute of Chemical Engineers. The annual meeting of the AIChE (Dec. 12-15, NYC), will hear on Dec. 13th, as the sixth annual institute lecture, Manson Benedict, MIT, who will talk on Nuclear Reactors for Research.

NEW BOOKS & OTHER PUBLICATIONS...on nuclear subjects...

Minerals for Atomic Energy, by R.D. Mininger, deputy ass't. dir. for exploration, USAEC. Covers minerals essential to, or important in, the process of atomic fission: uranium, thorium, beryllium. (The fourth important mineral, zirconium, is not discussed, the author says, because it presents no raw material supply problem.) Discusses incidence in this country and abroad; identification in nature; tools needed; and other essentials for successful prospecting. 367 pages. --D. Van Nostrand Co., New York. (\$7.50).

Explaining the Atom, by Selig Hecht. A clear, accurate explanation of nuclear energy for the lay reader. Revised and expanded by Eugene Rabinowitch, Univ. of Chicago, to include a compact summary of developments in atomic and thermonuclear weapons since 1946. 237 pages. --The Viking Press, New York 17. (\$3.75).

Atomic Science: Bombs & Power, by David Dietz, science editor, Scripps-Howard newspapers. A popular account of weapons, reactors, nuclear power plants, and new discoveries in basic research. (The non-technically-trained reader will find Explaining the Atom, as above, of greater value for an understanding of the subject.) 316 pages. --Dodd, Mead & Co., New York. (\$4.50).

Atomic Energy Act of 1954. Provides an explanatory text, in non-legal language, in addition to the full text of the Act. A useful booklet, superior to the official release. 63 pages. --Commerce Clearing House, Inc., Chicago 1, Ill. (\$1 the single copy; quantity prices on application).

RAW MATERIALS...prospecting, mining & marketing...

UNITED STATES:- A new uranium company, the American Energy Corp., has been organized by a California group to develop 48 claims in the Cane Springs area of Utah which have been purchased from the owner, Harry Hollingsworth. President of American Energy is V.J. Nelson, Glendale, Calif., who has operated a mercury mining concern in Mexico. Mr. Hollingsworth will stay with the concern as mining engineer. Some 290 claims near Moab, Utah, have now been purchased by the Natomas Co., of Sacramento, Calif., a placer gold mining firm. The claims were purchased from Moab residents for a reported \$50,000 plus 7½% royalty..... Homestake Mining Co. has now completed its three compartment shaft on the La Sal Mining Co. lease, 32-miles south of Moab. This company, which operates the gold mine in the Black Hills, S. Dakota, only recently has entered the uranium mining field..... Climax Uranium Co. has now let a contract for a new crushing and sampling plant (at the Climax mill in Grand Junction) to Western-Knapp Engineering Co.

CANADA:- Good progress is being made by Gunnar Mines in bringing its orebody at Lake Athabaska to production, company officials report. It is felt that the scheduled date set for next September will be met satisfactorily. Officials also feel that the actual milling rate may exceed the initial plans of a 1,250-ton day rate for which the mill is designed.

ATOMIC PATENT & TRADE-MARK DIGEST...latest grants made...

PRIVATE ORGANIZATIONS/INDIVIDUALS:- Gamma-ray detector. A counting rate meter comprising (in part) a cold cathode gaseous-discharge tube having two main electrodes and a trigger electrode, a condenser and a charging circuit, with a triggering circuit in series with the triggering electrode and one of the main electrodes. Connections are provided for discharging the condenser through this tube by way of the main electrodes, while an integrating network is connected in the charging circuit. U.S. Pat. No. 2,692,339 issued Oct. 19th, 1954; assigned to The National Research Corp., London, England. (Inventor: Ernest Franklin, W. Malvern, Eng.)

Detection and measurement of radiation. A detector for penetrative radiation such as gamma rays comprising (in part) a luminophor responsive to such radiation with the resultant emission of scintillations, while a Geiger-Muller type detector directly sensitive to these scintillations is located adjacent this luminophor. This detector includes a photo-sensitive cathode having a relatively high work function as compared, for example, to metallic caesium, and a filling of ionizable gas at sufficient pressure to provide substantial gas amplification. U. S. Pat. No. 2,694,153 issued Nov. 19th, 1954; assigned to Texaco Development Corp., New York, N.Y. (Inventor: Charles F. Teichmann.)

Trade-Mark (U.S.) for the name RADIOCAPS has now been issued Abbott Laboratories, North Chicago, Ill., for capsules embodying radioactive substances for diagnosis and medical treatment. SN 664,379 issued Oct. 26th, 1954.

GOVERNMENT ORGANIZATIONS:- High voltage bushing, for use with electrical equipment in a tank containing insulating fluid. Comprises (in part) a sealed insulating cylinder, and an insulating fluid within the cylinder. An electrical conductor, connected to the cylinder ends, is for connection to electrical equipment. A cylindrical corona shield extends along the conductor, while several insulating tubes located concentrically about the electrical conductor in radially spaced relationship within this corona shield prevent direct current electrical breakdown between the corona shield and the conductor. U. S. Pat. No. 2,692,297 issued Oct. 19th, 1954; assigned to United States of America (USAEC). (Inventor: Harvey M. Owens.)

Uranium-nickel metal alloy. Comprises a peritectic composition of matter consisting essentially of uranium and nickel. U. S. Pat. No. 2,692,823 issued Oct. 26th, 1954; assigned to United States of America (USAEC). (Inventors: Marion E. Cieslicki and Benny J. Nelson.)

Pressure ascertaining means. A device to impart to pressure responsive apparatus carried by a body the ambient pressure adjacent the body. Comprises (in part) flexible tubular means (communicating with the apparatus and in trailing relationship with respect to the body during pressure ascertainment periods) having an inner surface provided with several inwardly directed protuberances; rigid tubular means secured to and having an open end in communication the flexible means and having an opposite closed end. U. S. Pat. No. 2,693,700 issued Nov. 9th, 1954; assigned to United States of America (USAEC). (Inventor: Carrol V. Osborne.)

Liquid sampler. A combination comprising two pipes for withdrawing liquid from and returning liquid to a container. Two tubes are connected to the two pipes and a sampling vessel encloses the open ends of the tubes and has its base near these open ends. The tube connected to the withdrawing pipe has its open end nearer the base of the vessel than is the open end of the other tube, and means in communication with the returning pipe and the tube with the higher open end provide for sucking liquid into the vessel through the withdrawing pipe and the tube with the lower open end. U. S. Pat. No. 2,693,705 issued Nov. 9th, 1954; assigned to United States of America (USAEC). (Inventors: John A. Casler and Harry O. Smith.)

Sincerely,

The Staff,
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